

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference PHDE030412WO	<b>FOR FURTHER ACTION</b>		See item 4 below
International application No. PCT/IB2004/052746	International filing date ( <i>day/month/year</i> ) 10 December 2004 (10.12.2004)	Priority date ( <i>day/month/year</i> ) 11 December 2003 (11.12.2003)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant PHILIPS INTELLECTUAL PROPERTY & STANDARDS GMBH			

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 <i>bis</i> .1(a).																								
2.	This REPORT consists of a total of 8 sheets, including this cover sheet.  In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.																								
3.	<p>This report contains indications relating to the following items:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 30%;">Box No. I</td> <td style="width: 60%;">Basis of the report</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input checked="" type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).																								

<p style="text-align: center;">The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No. +41 22 740 14 35</p>	<p>Date of issuance of this report 12 June 2006 (12.06.2006)</p> <p>Authorized officer</p> <p style="text-align: center; font-weight: bold;">Cecile Chatel</p> <p>Telephone No. +41 22 338 70 60</p>
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# PATENT COOPERATION TREATY

REC'D 15 MAR 2005

From the  
INTERNATIONAL SEARCHING AUTHORITY

WIPO PCT

PCT

To:

see form PCT/ISA/220

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/IB2004/052746

International filing date (day/month/year)  
10.12.2004

Priority date (day/month/year)  
11.12.2003

International Patent Classification (IPC) or both national classification and IPC  
G06T3/00

Applicant  
PHILIPS INTELLECTUAL PROPERTY & STANDARDS GMBH

### 1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

### 2. FURTHER ACTION

If a demand for International preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

### 3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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D-80298 Munich  
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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/IB2004/052746

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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material:
    - ☐ in written format
    - ☐ in computer readable form
  - c. time of filing/furnishing:
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in computer readable form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/IB2004/052746

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**Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

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The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application,
- ☒ claims Nos. 2-7

because:

- ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):
- ☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 2-7 are so unclear that no meaningful opinion could be formed (*specify*):

**see separate sheet**

- ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
- ☐ no international search report has been established for the whole application or for said claims Nos.
- ☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:
  - the written form ☐ has not been furnished
  - ☐ does not comply with the standard
  - the computer readable form ☐ has not been furnished
  - ☐ does not comply with the standard
- ☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-bis of the Administrative Instructions.
- ☐ See separate sheet for further details

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/IB2004/052746

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**Box No. V Reasoned statement under Rule 43b/s.1(a)(I) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1 8 9
Inventive step (IS)	Yes: Claims	
	No: Claims	1 8 9
Industrial applicability (IA)	Yes: Claims	1 8 9
	No: Claims	

2. Citations and explanations

**see separate sheet**

**Re Item III**

**Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

**1. CLARITY**

1.1 Claim 2 is completely unclear (Article 6 PCT). While the claim 2 is a method claim, there is no clear sequence of method steps to be carried out, formulated in a way that they can be readily understood.

The claim also contains vague terminology. It is not clear, e.g., the meaning of "first number of dimensions" in the context of a 2D image registration problem.

1.2 Claims 3-7, being dependent on claim 2, are also completely unclear (Article 6 PCT).

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following documents:

D1: BAOJUN LI ET AL: "3D intersubject warping and registration of pulmonary CT images for a human lung model" PROCEEDINGS OF THE SPIE - THE INTERNATIONAL SOCIETY FOR OPTICAL ENGINEERING SPIE-INT. SOC. OPT. ENG USA, vol. 4683, 26 February 2002 (2002-02-26), pages 324-335, XP009045002 ISSN: 0277-786X

D2: WO 99/24932 A (MILLER, MICHAEL, I; JOSHI, SARANG, C; CHRISTENSEN, GARY, E) 20 May 1999 (1999-05-

20)

## **2. NOVELTY**

- 2.1 The application does not meet the requirements of Article 6 PCT, because claims 1, 8 and 9 are not clear.
- 2.2 In particular, in claim 1, the sentence: "selecting at least one first landmark in the first image" (claim 1, line 2) includes, as particular cases, the selection of just one (or two) landmark(s). It is not clear how the algorithm described on page 7, lines 5-18 can possibly work with just one (or two) landmark(s). In particular, it is not clear how the simplex  $P_A$ , in a 2D space, can be spanned by just one (or two) point(s).
- 2.3 Furthermore, "registering the first and second images by using a similarity value" (claim 1, lines 3-4), it is not clear which sort of similarity it is used and how this similarity is measured.
- 2.4 Moreover, it is not clear how a "first region in the first image" (claim 1, line 4) can possibly be determined by "the at least one first landmark". In particular, as the landmark is a point, it is not clear how a point can be used to define a region.
- 2.5 Finally, in the sentence: "wherein the at least one first landmark corresponds to the at least one second landmark" (claim 1, line 6) it is not clear if a reference is made to a one-to-many correspondence of landmarks or if this correspondence is limited to the well known one-to-one relationship.
- 2.6 Similar objections applies to the corresponding device claim 8 and computer program claim 9.
- 2.7 Furthermore, the above-mentioned lack of clarity notwithstanding, the subject-matter of claims 1, 8 and 9 is not new in the sense of Article 33(2) PCT, and therefore the criteria of Article 33(1) PCT are not met.

- 2.8 The document D1 discloses, in terms of claim 1:  
- "Method of registering a first image and a second image ... selecting at least one first landmark in the first image ... and registering the first and second image by using a similarity value ... wherein the at least one first landmark corresponds to the at least one second landmark" (D1, page 325, second paragraph).  
Therefore the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.
- 2.9 A similar objection applies to the corresponding device claim 8 and computer program claim 9, which are therefore also considered to be not new.

### **3. FINAL REMARKS**

- 3.1 From a brief review of the prior art currently on file it appears that the combination of essential features recited in the description at page 7, lines 5-18 is neither known from, nor rendered obvious by, the available prior art. In particular, the technical feature of: "iteratively refining the tiling until a desired similarity is achieved" (description, page 7, lines 13-14) makes a substantial difference over both D1 and D2.
- 3.2 If the claims are amended, the description should be amended accordingly, with a special view to the references to the claims on pages 2-4, to avoid any possible lack of clarity.
- 3.3 It is also suggested to check the term "spent" on page 7, line 6 for possible typing mistakes, and to verify the consistency of the value "d+1" on line 6 with the value "d+1", obtained after adding a new landmark to the initial d+1 landmarks, on lines 12-13 on the same page.